

Fundamentals of Graphic Communication

Curriculum Content Frameworks

Please note: All assessment questions will be taken from the knowledge portion of these frameworks.

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Curriculum Content Frameworks

Fundamentals of Graphic Communication

Grade Levels: 9, 10, 11, 12	Prerequisite: None
Course Code: 493600	
Course Description: This course provides an overview of digital imaging and platemaking, offset press operation, and finishing and binding operations. It requires production of visuals using electronic illustrations and text of the printing industry, its basic operations, and career opportunities.	

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Unit 1: Safety

Hours: 10

Terminology: Ergonomics, MSDS, Machine guards, OSHA, Safety color codes

CAREER and TECHNICAL SKILLS		ACADEMIC and WORKPLACE SKILLS				
What the Student Should be Able to Do		What the Instruction Should Reinforce				
Knowledge		Application		Skill Group	Skill	Description
1.1 Define terms related to the safety	1.1.1 Apply terminology in appropriate situations	Foundation	Reading	Applies and understands technical words that pertain to safety [1.3.6]		
			Listening	Comprehends ideas and concepts related to Graphic Communication [1.2.1]		
			Writing	Uses words appropriately [1.6.21]		
			Speaking	Applies/uses technical terms as appropriate to audience [1.5.2]		
1.2 Discuss the use of personal protective equipment in GC class	1.2.1 Use personal protective equipment in a timely and appropriate manner	Foundation	Science	Uses equipment and techniques related to Graphic Communication [1.4.23]		
		Interpersonal Skills	Teamwork	Contributes to group with ideas, suggestions, and effort [2.6.2]		
1.3 Identify safety practices for various situations	1.3.1 Follow proper safety procedures for using fire extinguishers	Foundation	Science	Follows safety guidelines [1.4.15]		
		Thinking	Knowing How To Learn	Applies new knowledge and skills to safety procedures [4.3.1]		
	1.3.2 Follow environmentally friendly practices for use and disposal of toxic liquids and chemicals	Foundation	Science	Analyzes environmental issues related to disposal of materials [1.4.2]		
		Personal Management	Responsibility	Sets high standards for self in completion of a task [3.4.9]		
	1.3.3 Follow proper safety procedures for all equipment	Foundation	Science	Follows safety guidelines [1.4.15]		
		Personal Management	Responsibility	Maintains a high level of concentration in completion of a task [3.4.7]		
	1.3.4 Follow proper safety procedures for ventilation	Foundation	Science	Follows safety guidelines [1.4.15]		
		Personal Management	Responsibility	Maintains a high level of concentration in completion of a task [3.4.7]		

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce			
Knowledge	Application	Skill Group	Skill	Description	
	1.3.5 Follow proper safety procedures for evacuation of classroom and building	Foundation Personal Management	Science Responsibility	Follows safety guidelines [1.4.15] Maintains a high level of concentration in completion of a task [3.4.7]	
	1.3.6 Follow proper safety guidelines and procedures for injuries in Graphic Communication lab	Foundation Personal Management	Science Responsibility	Follows safety guidelines [1.4.15] Maintains a high level of concentration in completion of a task [3.4.7]	
	1.3.7 Follow proper housekeeping procedures for classroom and lab areas	Personal Management	Integrity/Honesty/ Work Ethic	Complies with safety and health rules in a given work environment [3.2.2]	
1.4 Identify safety color codes in lab areas	1.4.1 Follow proper safety procedures for color coded lab areas	Foundation Thinking	Science Knowing How To Learn	Follows safety guidelines [1.4.15] Applies new knowledge and skills to safety procedures [4.3.1]	

Unit 2: Measurement

Hours: 10

Terminology: Angle, E-Scale, Line gauge, Pica, Point, Proportion

CAREER and TECHNICAL SKILLS			ACADEMIC and WORKPLACE SKILLS		
What the Student Should be Able to Do			What the Instruction Should Reinforce		
Knowledge		Application	Skill Group	Skill	Description
2.1	Define terms related to measurement	2.1.1 Apply terminology in appropriate situations	Foundation	Reading	Applies and understands technical words that pertain to measurement in Graphic Communication [1.3.6]
				Listening	Comprehends ideas and concepts related to Graphic Communication [1.2.1]
				Writing	Uses words appropriately [1.6.21]
				Speaking	Applies/uses technical terms as appropriate to audience [1.5.2]
2.2	Identify basic math and measurement procedures (geometry)	2.2.1 Use a line gauge to read inches and fractions of an inch	Foundation	Arithmetic/ Mathematics	Calculates measurements taken from measuring devices [1.1.9]
		2.2.2 Use a line guage to read points and picas	Foundation	Arithmetic/ Mathematics	Calculates measurements taken from measuring devices [1.1.9]
		2.2.3 Convert fractions to decimals	Foundation	Arithmetic/ Mathematics	Converts different units of measurement [1.1.17]
		2.2.4 Solve basic ratio problems	Foundation	Arithmetic/ Mathematics	Calculates percentages, ratios, proportions, decimals and common fractions [1.1.10]
			Personal Management	Responsibility	Sets high standards for self in completion of a task [3.4.9]

Unit 3: Paper and Substrates

Hours: 15

Terminology: Basis weight, Bond paper, Brightness, Carbonless paper, Cover paper, Finish, Grain, Index paper, M weight, Opacity, Ream, Substrate, Watermark

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do		ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge	Application	Skill Group	Skill	Description
3.1 Define terms related to paper and substrates	3.1.1 Apply terminology in appropriate situations	Foundation	Reading	Applies and understands technical words that pertain to paper and substrates [1.3.6]
			Listening	Comprehends ideas and concepts related to Graphic Communication [1.2.1]
			Writing	Uses words appropriately [1.6.21]
			Speaking	Applies/uses technical terms as appropriate to audience [1.5.2]
3.2 Review the use of substrates in printing	3.2.1 Research and compare printed samples of various substrates	Foundation	Science	Applies knowledge to complete a practical task [1.4.3]
		Thinking	Reasoning	See relationship between two or more ideas, objects, or situations [4.5.5]
3.3 Discuss the use of paper in printing	3.3.1 Differentiate paper weights	Thinking	Reasoning	See relationship between two or more ideas, objects, or situations [4.5.5]
	3.3.2 Determine grain direction	Thinking	Decision Making	Evaluates information/data to make best decision [4.2.5]
	3.3.3 Describe paper finishes	Foundation	Writing	Applies/uses technical words and concepts [1.6.4] Evaluates information/data to make best decision [4.2.5]

Unit 4: Digital Imaging & Platemaking

Hours: 35

Terminology: Ascender, Balance, Bold, Computer-to-plate, Descender, Electrostatic plate, Font, Italic, Line spacing, Margin, Mechanical, Metal plate, Novelty, Roman, Rhythm, San Serif, Script, Serif, Shape, Text, Thumbnail, Underline, Unity

CAREER and TECHNICAL SKILLS				ACADEMIC and WORKPLACE SKILLS		
What the Student Should be Able to Do				What the Instruction Should Reinforce		
Knowledge		Application		Skill Group	Skill	Description
4.1	Define terms related to digital imaging and platemaking	4.1.1	Apply terminology in appropriate situations	Foundation	Reading	Applies and understands technical words that pertain to digital imaging and platemaking [1.3.6]
					Listening	Comprehends ideas and concepts related to Graphic Communication [1.2.1]
					Writing	Uses words appropriately [1.6.21]
					Speaking	Applies/uses technical terms as appropriate to audience [1.5.2]
4.2	Identify appropriate equipment and software for digital imaging	4.2.1	Discuss the difference between computer operating systems used in Graphic Communication field	Interpersonal Skills	Teamwork	Contributes to group with ideas, suggestions, and effort [2.6.2]
				Thinking	Problem Solving	Comprehends ideas and concepts related to computer operating systems [4.4.1]
		4.2.2	Use basic input and output components in relationship to Graphic Communications applications	Thinking	Knowing How To Learn	Applies new knowledge and skills to Graphic Communication [4.3.1]
				4.2.3	Use industry specific software in measurement, layout and design, importing and exporting images	Thinking
4.3	Identify principles and elements of design	4.3.1	Identify balance, proportion, rhythm, and unity	Foundation	Science	Describes/explains scientific principles related to design in Graphic Communication [1.4.23]
		4.3.2	Discuss the uses of color, line, space, texture, and shape in design	Thinking	Reasoning	Comprehends ideas and concepts related to design in Graphic Communication [4.5.2]
		4.3.3	Create a thumbnail sketch, rough draft, and a mechanical drawing	Thinking	Creative Thinking	Creates new design by applying specified criteria [4.1.3]

CAREER and TECHNICAL SKILLS		ACADEMIC and WORKPLACE SKILLS			
What the Student Should be Able to Do		What the Instruction Should Reinforce			
Knowledge	Application	Skill Group	Skill	Description	
4.4 Identify principles of typography	4.4.1 Specify character elements (ascender, descender, serif, sans serif)	Thinking	Reasoning	Comprehends ideas and concepts related to typography in Graphic Communication [4.5.2]	
	4.4.2 Use an E-scale to demonstrate appropriate type size, margins, and line spacing	Foundation	Arithmetic/ Mathematics	Calculates measurements taken from measuring devices [1.1.9]	
		Thinking	Knowing How To Learn	Applies new knowledge and skills to Graphic Communication [4.3.1]	
	4.4.3 Discuss appropriate type styles (sans serif, square serif, roman, script, text, and novelty)	Foundation	Speaking	Applies/uses technical terms as appropriate to audience [1.5.2]	
		Thinking	Knowing How To Learn	Applies new knowledge and skills to Graphic Communication [4.3.1]	
	4.4.4 Discuss appropriate type attributes (italic, bold, and underline)	Foundation	Speaking	Applies/uses technical terms as appropriate to audience [1.5.2]	
		Thinking	Knowing How To Learn	Applies new knowledge and skills to Graphic Communication [4.3.1]	
	4.4.5 Discuss appropriate type setting formats (left, right, center, justify)	Foundation	Speaking	Applies/uses technical terms as appropriate to audience [1.5.2]	
		Thinking	Knowing How To Learn	Applies new knowledge and skills to Graphic Communication [4.3.1]	
4.5 Identify proofreading marks	4.4.6 Use appropriate fonts in different publications	Thinking	Decision Making	Evaluates information/data to make best decision [4.2.5]	
		Thinking	Seeing Things in the Mind's Eye	Visualizes a finished product [4.6.4]	
		Thinking	Seeing Things in the Mind's Eye	Visualizes a finished product [4.6.4]	
4.5 Identify proofreading marks	4.5.1 Demonstrate the proper use of proofreading marks	Personal Management	Responsibility	Maintains a high level of concentration in completion of a task [3.4.7]	
		Thinking	Knowing How To Learn	Applies new knowledge and skills to Graphic Communication [4.3.1]	

CAREER and TECHNICAL SKILLS What the Student Should be Able to Do			ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce		
Knowledge	Application		Skill Group	Skill	Description
	4.5.2	Demonstrate the use of software spelling and grammar tools	Personal Management	Responsibility	Maintains a high level of concentration in completion of a task [3.4.7]
			Thinking	Knowing How To Learn	Applies new knowledge and skills to Graphic Communication [4.3.1]
4.6 Describe platemaking methods	4.6.1	Discuss methods and equipment commonly used in platemaking processes (computer-to-plate, electrostatic plate, and metal plate)	Foundation	Speaking	Applies/uses technical terms as appropriate to audience [1.5.2]
			Thinking	Knowing How To Learn	Applies new knowledge and skills to Graphic Communication [4.3.1]
	4.6.2	Recognize materials used in platemaking processes (polyester, paper, and metal)	Thinking	Knowing How To Learn	Uses available resources to acquire new skills or improve skills [4.3.4]
	4.6.3	Follow safety procedures for handling platemaking chemicals	Personal Management	Integrity/Honesty/Work Ethic	Complies with safety and health rules in a given work environment [3.2.2]
	4.6.4	Create an offset plate using platemaking methods	Thinking	Creative Thinking	Creates new design by applying specified criteria [4.1.3]

Unit 5: Offset Press Operation

Hours: 35

Terminology: Blanket cylinder, Dampening system, Delivery system, Double sheet detector, Feeding system, Image area, Impression cylinder, Ink fountain, Inking system, Make ready, Night latch, Non-image area, Plate cylinder, Printing system, Register unit, Sheet fed press, Sucker feet

CAREER and TECHNICAL SKILLS				ACADEMIC and WORKPLACE SKILLS		
What the Student Should be Able to Do				What the Instruction Should Reinforce		
Knowledge		Application		Skill Group	Skill	Description
5.1	Define terms related to digital imaging and platemaking	5.1.1	Apply terminology in appropriate situations	Foundation	Reading	Applies and understands technical words that pertain to offset press operation [1.3.6]
					Listening	Comprehends ideas and concepts related to Graphic Communication [1.2.1]
					Writing	Uses words appropriately [1.6.21]
					Speaking	Applies/uses technical terms as appropriate to audience [1.5.2]
5.2	Describe press classifications	5.2.1	Compare common press classifications	Thinking	Reasoning	See relationship between two or more ideas, objects, or situations [4.5.5]
5.3	Identify the major press operating systems (delivery, feed, inking, dampening, and printing)	5.3.1	Perform an offset press operation	Thinking	Seeing Things in the Mind's Eye	Visualizes a system's operation from schematics [4.6.3]
		5.3.2	Demonstrate safe working practices	Personal Management	Integrity/Honesty/ Work Ethic	Complies with safety and health rules in a given work environment [3.2.2]
5.4	Identify press controls	5.4.1	Demonstrate safe operating procedures	Foundation	Science	Describes/explains scientific principles related to design in Graphic Communication [1.4.23]
				Thinking	Reasoning	Comprehends ideas and concepts related to design in Graphic Communication [4.5.2]
		5.4.2	Demonstrate proper press operating procedures (setup, paper feed, installing plate, ink, water balance, and printing)	Personal Management	Responsibility	Maintains a high level of concentration in completion of a task [3.4.7]
				Thinking	Knowing How To Learn	Applies new knowledge and skills to Graphic Communication [4.3.1]

CAREER and TECHNICAL SKILLS			ACADEMIC and WORKPLACE SKILLS		
What the Student Should be Able to Do			What the Instruction Should Reinforce		
Knowledge		Application	Skill Group	Skill	Description
5.5 Identify proper cleaning procedures	5.5.1	Conduct required clenaing functions	Foundation	Speaking	Applies/uses technical terms as appropriate to audience [1.5.2]
			Thinking	Knowing How To Learn	Applies new knowledge and skills to Graphic Communication [4.3.1]
	5.5.2	Be familiar with proper shut down procedures for equipment (cylinders, night latch)	Foundation	Speaking	Applies/uses technical terms as appropriate to audience [1.5.2]
			Thinking	Knowing How To Learn	Applies new knowledge and skills to Graphic Communication [4.3.1]

Unit 6: Finishing and Binding

Hours: 15

Terminology: Collator, Cutter, Folder, Packaging, Padding, Paper drill, Stitcher

CAREER and TECHNICAL SKILLS		ACADEMIC and WORKPLACE SKILLS				
What the Student Should be Able to Do		What the Instruction Should Reinforce				
Knowledge		Application		Skill Group	Skill	Description
6.1	Define terms related to finishing and binding	6.1.1	Apply terminology in appropriate situations	Foundation	Reading	Applies and understands technical words that pertain to finishing and binding [1.3.6]
					Listening	Comprehends ideas and concepts related to Graphic Communication [1.2.1]
					Writing	Uses words appropriately [1.6.21]
					Speaking	Applies/uses technical terms as appropriate to audience [1.5.2]
6.2	Identify finishing and binding procedures	6.2.1	Follow proper safety procedures for finishing and binding	Thinking	Seeing Things in the Mind's Eye	Visualizes a system's operation from schematics [4.6.3]
				Personal Management	Integrity/Honesty/Work Ethic	Complies with safety and health rules in a given work environment [3.2.2]
		6.2.2	Utilize finishing and binding equipment and tools (cutter, stitcher, folder, paper drill, collator, padding procedures, and packaging)	Personal Management	Responsibility	Maintains a high level of concentration in completion of a task [3.4.7]
				Thinking	Knowing How To Learn	Applies new knowledge and skills to Graphic Communication [4.3.1]

Glossary

Unit 1: Safety

1. Ergonomics – an applied science that coordinates the design of devices, systems, and physical working conditions with the capacities and requirements of the worker
2. MSDS – Material Safety Data Sheet
3. Machine guard – protects the human body from injury and the equipment from foreign objects
4. OSHA – Occupational Safety Health Administration
5. Safety Color Codes – hazardous identification chart with icons identifying personal protection required for varioius hazard categories

Unit 2: Measurement

1. Angle – screen angles are measured in degrees when making color separations for each primary color
2. E-Scale -- a ruler used to measure type size from 6pt to 100pt; Measurements include points, picas, agate and inches
3. Line gauge – a device used to measure type size and line lengths in points and picas, a printer's rule
4. Pica – one of the principle units of measure used in graphic communications. Six picas equal one inch
5. Point – one of the principle units of measure used in graphic communications. Twelve points equal one pica
6. Proportion – design characteristic concerned with size relationship of both sheet size and image placement

Unit 3: Paper & Substrates

1. Basis weight – the weight of a ream of paper
2. Bond paper – paper used for business letters and forms
3. Brightness – the amount of light reflected from the paper's surface
4. Carbonless paper – any paper stock coated, manufactured, or treated to provide part-to-part imaging under pressure without the use of carbon interleaves.
5. Cover paper – a thick paper used for covers of books and catalogs
6. Finish – the degree of smoothness of a paper's surface
7. Grain – the direction or structure of paper fibers
8. Index paper – a thick, smooth paper designed for frequent handling
9. M weight – the weight of 1000 sheets of paper
10. Opacity – refers to the amount of light that can be seen through a sheet of paper
11. Ream – generally considered to be 500 sheets of paper
12. Substrate – the material being printed on
13. Watermark – a symbol or logo formed into the paper

Unit 4: Digital Imaging & Platemaking

1. Ascender – the part of a letter that extends above the body height
2. Balance – the even distribution of images to create a pleasing effect
3. Bold – heavy black type
4. Computer-to-plate -- a Graphic Communication imaging technology used in modern printing processes where an image created in a Desktop Publishing (DTP) application is output directly to a printing plate
5. Descender – the part of a letter that extends below the body height
6. Electrostatic plate -- electrically charged plates that absorb images
7. Font – a collection of all the characters of the alphabet of one size or series
8. Italic – a slanted version of an upright letter
9. Line spacing – determines the distance separating each line of copy
10. Margin – the edge or border around the body of a written or printed page
11. Mechanical – the final stage of a layout
12. Metal plate -- a thin sheet of metal which carries an image
13. Novelty – typeface designed primarily to command special attention, express a mood, or provide a special appearance for the theme or occasion
14. Roman – characterized by variation in stroke and by use of serif
15. Rhythm – the use of elements in an image to create visual movement and direction
16. San Serif – a font characterized by uniform strokes and serif shapes without fillets or rounds
17. Script – characterized by a design that attempts to duplicate feelings of free-form handwriting
18. Serif – the thickest tips or the short finishing-off stroke at the top and bottom of a character
19. Shape – elementary forms that define specific areas of space

- 20. Text – characterized by a design that attempts to recreate the feeling of medieval scribes
- 21. Thumbnail – simple, rapidly drawn design of a layout
- 22. Underline – a line directly under a character
- 23. Unity – the proper balance of all images

Unit 5: Press Operation

1. Blanket cylinder – holds the image receptive blanket on the press
2. Dampening system – applies moisture to the non-image areas of the plate
3. Delivery system – removes the printed sheets from the press and places them in a stack
4. Double sheet detector – a device that prevents more than one sheet of paper from entering the press
5. Feeding system – a mechanism that sends the paper into the press
6. Image area – areas of the plate that accepts ink and repels water
7. Impression cylinder – contacts the blanket cylinder and transfers the image to the paper
8. Ink fountain – holds a supply of ink for printing
9. Inking system – carries a film of ink to the image areas of the plate
10. Make ready – procedure that is used to prepare a press to print a particular job
11. Night latch – keeps the rollers from contacting each other during idle periods
12. Non-image area – areas of the plate that accept water and repel ink
13. Plate cylinder – holds the printing plate on the press
14. Printing system – transfers the image from the plate to the substrate
15. Register unit – aligns the sheet for printing
16. Sheet fed press – a press that prints on individual sheets of paper
17. Sucker feet – devices that provide a vacuum to transfer sheets to the pull-out rolls

Unit 6: Finishing & Binding

1. Collator – equipment that assembles individual, printed sheets into the correct sequence
2. Cutter – equipment used to cut paper stock
3. Folder – equipment that registers one edge of the paper with the other and makes a smooth crease
4. Packaging – a process by which printed pieces are wrapped, strapped, or boxed for delivery to the customer
5. Padding – an inexpensive fastening method. Padding compound is applied with a brush to the ends of a substrate that has been clamped together
6. Paper drill – equipment with a hollow, revolving drill bit with sharp edges that produces holes in a substrate
7. Stitcher – equipment that inserts wire staples into sheets of paper to hold them together